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| <b>(21) International Application Number:</b> PCT/US98/11741<br><b>(22) International Filing Date:</b> 5 June 1998 (05.06.98)<br><br><b>(71) Applicant (for all designated States except US):</b> WM. WRIGLEY JR. COMPANY [US/US]; 410 North Michigan Avenue, Chicago, IL 60611 (US).<br><br><b>(72) Inventors; and</b><br><b>(75) Inventors/Applicants (for US only):</b> YATKA, Robert, J. [US/US]; 15127 South St. Andrews Court, Orland Park, IL 60462 (US). TOWNSEND, Donald, J. [US/US]; Apartment 10, 902 Joliet Road, LaGrange, IL 60525 (US). JOHNSON, Sonya, S. [US/US]; 928 58th Street, LaGrange Highlands, IL 60525 (US). GREENBERG, Michael, J. [US/US]; 1633 Brighton Court, Northbrook, IL 60062 (US). SITLER, Daniel, J. [US/US]; 2805 Kincaid Drive, Woodridge, IL 60517 (US).<br><br><b>(74) Agent:</b> SHURTZ, Steven, P.; Brinks Hofer Gilson & Lione, NBC Tower, Suite 3600, 455 North Cityfront Plaza Drive, Chicago, IL 60611-5599 (US).  |           | <b>(81) Designated States:</b> AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GE, GH, GM, GW, HU, ID, IL, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZW, ARIPO patent (GH, GM, KE, LS, MW, SD, SZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG).<br><br><b>Published</b><br><i>With international search report.</i> |
| <b>(54) Title:</b> METHOD OF CONTROLLING RELEASE OF N-SUBSTITUTED DERIVATIVES OF ASPARTAME IN CHEWING GUM AND GUM PRODUCED THEREBY<br><br><b>(57) Abstract</b><br><br>The present invention includes a method for producing a chewing gum with a modified release sweetener selected from the group of N-substituted derivatives of aspartame, particularly neotame, as well as the chewing gum so produced. The modified release neotame or other N-substituted derivative of aspartame sweetener is obtained by physically modifying the sweetener properties by coating and drying. Neotame or another N-substituted derivative of aspartame sweetener is coated by encapsulation, partially coated by agglomeration, entrapped by absorption or extrusion, or treated by multiple steps of encapsulation, agglomeration, absorption, or extrusion. The coated sweetener is then co-dried and particle sized to produce a release-modified high-intensity sweetener. When incorporated into the chewing gum, these particles are adapted to enhance the shelf stability of the sweetener and/or produce a modified release when the gum is chewed. |           |   |

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**METHOD OF CONTROLLING RELEASE OF  
N-SUBSTITUTED DERIVATIVES OF ASPARTAME IN  
CHEWING GUM AND GUM PRODUCED THEREBY**

**5 BACKGROUND OF THE INVENTION**

The present invention relates to methods for producing chewing gum. More particularly the invention relates to producing chewing gum containing high-potency sweeteners which have been treated to control their release and enhance shelf-life stability.

10 In recent years, efforts have been devoted to controlling release characteristics of various ingredients in chewing gum. Most notably, attempts have been made to delay the release of sweeteners and flavors in various chewing gum formulations to thereby lengthen the satisfactory chewing time of the gum. Delaying the release of sweeteners and flavors can also avoid an  
15 undesirable overpowering burst of sweetness or flavor during the initial chewing period. On the other hand, some ingredients have been treated so as to increase their rate of release in chewing gum.

In addition, other efforts have been directed at perfecting the use of high-potency sweeteners within the chewing gum formulation, to thereby  
20 increase the shelf-life stability of the ingredients, *i.e.* the protection against degradation of the high-potency sweetener over time.

A recently identified class of high potency sweeteners are N-substituted derivatives of aspartame. Some of these sweeteners may give a long lasting sweetness release when used in chewing gum, while others may  
25 give a fast release that may not be compatible with the release of flavor. By modifying N-substituted derivatives of aspartame by various methods, a

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